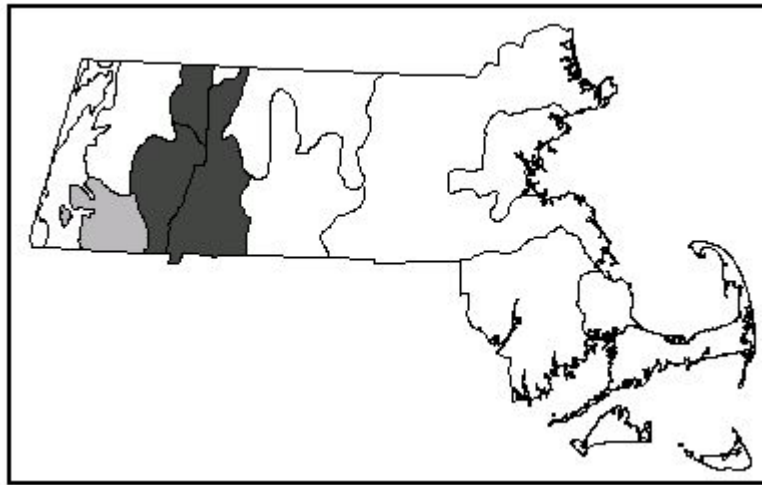


**Community Name:**  
**Community ELCODE:**  
**SRANK:**

**HIGH-ENERGY RIVERBANK**  
 CP2A0B2400  
 S3



- Concept:** Sparse, open herbaceous/graminoid communities occurring on cobble and sand substrates of steep-gradient, fast-flowing rivers that experience severe flooding and ice scour.
- Environmental setting:** High-energy riverbank environments are created by the alluvial deposition of cobbles, sand and silt during high spring flood events, and they are shaped by continued annual flood events and winter ice scour. Differences in severity of scouring and flooding create a gradient of substrate types from the river's edge to the upland transition. Scouring and flooding are most intense at the river's edge, especially the upstream end of riverine islands, which receive the full force of ice floes and debris-laden flood waters. In the fast-moving water, only large cobbles are heavy enough to drop out of suspension. As the water crosses the cobblebar it slows down and smaller particles drop out, creating a continuum from cobbles and pebbles to sand and silt. That continuum correlates to a change in the vegetation communities.
- Vegetation Description:** Vegetation zonation within high-energy riverbank communities corresponds to substrate type and severity of flooding. On open cobbles, false dragonhead (*Physostegia virginiana*), cocklebur (*Xanthium strumarium*), beggar's ticks (*Bidens* spp.) and lady's thumb (*Polygonum persicaria*, an exotic) are dominant. As the percent sand increases, water horsetail (*Equisetum fluviatile*) and clasping dogbane (*Apocynum cannabinum* var. *hypericifolium*) occur, and there is typically a distinct band of switchgrass (*Panicum virgatum*). In the still sandier areas, mixed grasslands of switchgrass, big and little bluestem (*Andropogon gerardii* and *Schizachyrium scoparium*), Indian grass (*Sorghastrum nutans*), and goldenrods (*Solidago* spp.) are found. Intense flooding and ice scour prevents establishment and growth of trees or tall shrubs; cobble bars that do have a tree canopy (cover >30%) are classified separately as cobble bar forests. Short shrubs such as shadbush (*Amelanchier sanguinea*), silky dogwood (*Cornus amomum*), sandbar willow (*Salix exigua*) and sandbar cherry (*Prunus pumila* var. *depressa*) form a vegetation zone on the sandiest sections, typically bordering floodplain forests that occupy siltier soils.
- Associations:** No associations have been described in Massachusetts.
- Habitat values for Associated Fauna:** Riverine odonates use these areas as way stations.

**Associated rare plants:**

ALNUS VIRIDIS SSP CRISPA	MOUNTAIN ALDER	SC
ASTER TRADESCANTII	TRADESCANT'S ASTER	SC
CAREX LENTICULARIS	SHORE SEDGE	T
DESCHAMPSIA CESPITOSA SSP GLAUCA	TUFTED HAIRGRASS	E
PRUNUS PUMILA VAR DEPRESSA	SANDBAR CHERRY	SC
SALIX EXIGUA	SANDBAR WILLOW	SC

From: Swain, P.C. & J.B. Kearsley. 2001. Classification of the Natural Communities of Massachusetts. Version 1.3. Natural Heritage & Endangered Species Program, Division of Fisheries & Wildlife. Westborough, MA.

Natural Heritage & Endangered Species Program, Massachusetts Division of Fisheries & Wildlife

**Associated rare animals:**

CICINDELA DUODECIMGUTTATA	TWELVE-SPOTTED TIGER BEETLE	SC
GOMPHUS FRATERNUS	MIDLAND CLUBTAIL	E
GOMPHUS VASTUS	COBRA CLUBTAIL	SC
GOMPHUS VENTRICOSUS	SKILLET CLUBTAIL	SC

**Examples with Public Access:** Excellent examples of the community type in Massachusetts can be found on the upstream ends of the Sunderland Islands north of Sunderland Bridge on the Connecticut River.

**Threats:** The two major threats to high-energy river communities are alteration of natural flooding regimes due to river control projects and the invasion of non-native plant species. High-energy riverbank environments are created by severe flooding and ice scour, and these natural disturbance regimes are necessary to maintain the community. Because of the community's exposure to flooding, it is susceptible to colonization by exotic plants, such as purple loosestrife (*Lythrum salicaria*) and lady's thumb (*Polygonum persicaria*), that have their seeds washed in from upstream sources. Trampling from campers and boaters creates further disturbance and favors fast-growing exotic plants.

**Management needs:** Where possible, highly invasive exotic plants should be mechanically removed. Management to reduce non-native plant species throughout a drainage basin will help preserve the native plant communities of high-energy riverbanks. Natural hydrologic regimes should be maintained.

**Synonyms**

**USNVC/TNC:** Not described [loosely similar to Hudsonia tomentosa-Paronychia argyrocoma dwarf-shrubland [CEGL006232]].

**MA [old name]:** SNE High-energy riverbanks [CT1E2A1000].

**ME:** 2001 – related to Hudsonia River Beach and Sand Cherry – Tufted Hairgrass River Beach. 1991 - High-energy riverbank community.

**VT:** River cobble shore community.

**NH:** Related to Riverside Hudsonia sand/gravel barren. Riverside Sand /Gravel Barrens.

**NY:** Similar to Cobble shore and Riverside sand /gravel bar.

**CT:** Not described.

**RI:** Similar to Riverside sand /gravel bar.

**Golet & Larson, 1974:**

**Other:**

**Author:** J. Kearsley

**Date:** 7/21/99